

-- 65. An illuminator comprising:

an illumination system which illuminates a surface to be illuminated with luminous light from a light source, wherein said illumination system has one optical element, which has a titanium oxide film formed on only the periphery of its surface.

66. An illuminator according to claim 65, wherein said luminous flux comprises ultraviolet light, and said titanium oxide film prevents a containment from adhering to and contaminating a surface of the unit provided with said titanium oxide film by a photoconductive function caused by the absorption of said ultraviolet light.

67. An illuminator according to claim 65, wherein said unit comprises at least one of a lens, a mirror, a prism, a filter, a diffuser, a diffraction optical element, and an optical integrator.

68. An illuminator according to claim 65, wherein said optical unit comprises a diffraction optical lens using a diffraction optical element.

69. An illuminator according to claim 65, wherein said titanium oxide film is provided on the surface of a portion of a region of said optical unit in which light passes through.

70. An exposure apparatus for illuminating a pattern on a mask with luminous light from a light source and exposing a wafer with the pattern, said exposure apparatus comprising:

one optical element, which has a titanium oxide film formed on only the periphery of its surface.

71. An exposure apparatus according to claim 70, wherein a titanium oxide film is provided on the surface of at least one region of a supporting unit for supporting at least one optical unit.

72. An exposure apparatus according to claim 70, wherein said unit comprises at least one of a diaphragm, a shutter, and a lens barrel.

73. An exposure apparatus according to claim 70, wherein said optical unit comprises at least one of a lens, a mirror, a prism, a filter, a diffuser, a diffraction optical element, and an optical integrator.

74. An exposure apparatus according to claim 70, wherein said optical unit comprises a mirror.

75. An exposure apparatus according to claim 70, wherein said titanium oxide film is provided on the surface of a portion of a region of said optical unit in which light passes through.

76. An exposure apparatus according to claim 70, wherein exposure is performed while the pattern on said mask and said wafer are synchronously scanned. --